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# Harvest Labor Problems

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# Harvest Labor Problems



IOWA'S 13,000 combines will have to work at least 11 days with no time out this fall in order to get Iowa's soybean crop harvested.

The goal set is for Iowa to produce 84 percent more soybeans for seed this year than last. Indications are that the goal will be passed. And that means there's a "whale of a big" harvesting job ahead.

Even with the smaller crop of 1941, some soybeans never got harvested. There are only a few more combines now and a lot more soybeans. So some pretty careful planning and management must be done to get this crop harvested. Much, of course, depends on the weather.

To look at the situation a bit more in detail—Iowa has about 1 combine for every 15 farms. If we have reached our goal of 1,750,000 acres of soybeans for seed, then the 13,000 combines will have to

By D. K. STRUTHERS

harvest an average of about 134 acres each. We estimate that means about 11 days of steady work for every machine. If weather interferes, the job will be dragged out.

What can we do about this problem? Well, there is no other really satisfactory method of harvesting soybeans. Cutting with a binder and threshing takes more time, more labor, requires twine and does a less satisfactory job. Conservation of time and labor are essential now. Twine needs to be conserved drastically.

It comes down, then, to a matter of an almost "must" job with combines. And to do it with combines

means that there must be far more custom and cooperative use of combines and tractors than ever before. It means that every combine must be in top condition before the harvest begins so that all machines can work steadily. It means, further, that every good day must be utilized as soon as the beans are ready for harvest and storage.

Combines which have been harvesting 30 to 40 acres of soybeans this year must harvest 100 to 150 acres or more if we are to save this crop. An estimate of the 10-hour day capacity of a combine, binder or other "harvester" can be obtained by multiplying the width of the cut in feet by the speed in miles per hour. For instance, a 5-foot combine operated at 3 miles an hour should harvest about 15 acres

*Every Combine in Iowa Will Have to Work Overtime This Fall to Harvest Iowa's Largest Soybean Crop*

in a 10-hour day. This allows for 17.5 percent loss of actual working time. Under ideal harvesting conditions in large fields this daily capacity may be attained even with a complicated machine like a combine. In small fields and with adverse weather or ground conditions, the daily capacity may be considerably lower.

To get those tractors and combines in tiptop conditions before the harvest begins, all weak or broken parts need to be replaced.

Careful adjustment and operation of the combine will keep these at a minimum.

United States Department of Agriculture workers found in 1935 and 1936 in studies in Illinois and Mississippi that harvesting losses ranged from about 9 to 16½ percent. Split beans varied from about 1½ percent to nearly 7 percent. Losses in the straw were nearly twice as high in some cases as in others. But the big variation in loss came in the adjustment of

What about that big corn crop acreage with few men available? The answer on many a farm will necessarily be to use mechanical pickers.

The agricultural engineers at the Iowa Station have found that a two-man crew (one operating a two-row picker and one hauling and storing the corn) can get an average of from 1 to 1 1/3 acres of corn into the crib an hour. For short periods and with good equipment, including an inside elevator,



One man operating a picker and one hauling and cribbing the corn can get 1 to 1½ acres in the crib per hour.



Iowa's 13,000 combines will each have about 134 acres of soybeans to harvest this fall—about an 11-day job.

Go over the combine thoroughly to tighten all nuts and bolts, to clean grease fittings and grease pipes which won't take grease, to adjust or replace such parts as bearings, chains, belts, sprockets, pulleys, shaker arms and cranks which have been damaged by wear and to locate and repair all cracks or breaks in the frame of the machine.

Once the machine is put in shape, then it must be operated every day that is suitable for harvesting beans. Good combining days should not be allowed to slip by without getting some beans harvested.

Beans are most satisfactorily harvested by combining after they have matured standing in the field. The moisture content should be down to about 13½ percent to insure safe storage. Some losses in harvesting must be expected, but

the cutter bar, varying there from about 7 to 13½ percent. The speed of operation in these tests was just under 3 to nearly 4 miles an hour, and it didn't seem to have much effect on the losses.

Of course soybeans aren't the only crop that a lot of Iowa's combines will harvest this year. Harvesting small grain with a combine saves on the average of 3 to 3.5 hours an acre. So many a farm pressed for labor harvested small grain with a combine. If the Iowa farmers carried out their 1942 "Intentions to Plant" program announced in March and if combines did all of the harvesting, each would have about 398 acres of oats and 51 acres of wheat, barley and rye, in addition to their 134 acres of soybeans—a total of 583 acres.

The harvesting job of this season includes some other problems too.

they have been able to get as many as 2 acres into the crib per hour. Two good men husking by hand in 70-bushel corn will pick less than a fourth as much as a two-row picker.

And so—the answer to shortage of help in picking corn this fall surely will be the use of mechanical pickers. Theoretically, the capacity of a mechanical cornpicker is limited only by the speed at which it is operated. Actually the amount harvested in a day or hour is limited partly by the skill of the operator, number of interruptions such as clogging, adjustments, turning, changing wagons and the physical endurance of the operator as well as the speed of the machine. Keeping interruptions at a minimum speeds picking.

Corn picking can be speeded up by using two crews, one working



part of the night by using lights on the tractor and lights at the crib. The Iowa Station in a survey found that Iowa has about 12,267 single-row cornpickers and 25,803 two-row pickers. The same survey showed that the one-row pickers harvested an average of 62.2 acres last year and the two-row machines 162.9 acres. This year with the shortage of help, probably a lot of pickers that have been picking only 60 or 70 acres will harvest 400 or 500 acres. In other words, they will be working not alone for

hailed to the silo in bundles), Iowa has 12,479.

A study of these two methods by the Minnesota Station showed that the total cost of the labor per acre was less with the field harvester than with the stationary ensilage cutter. Besides, the labor with the field cutter is not nearly so hard, for the only handling of the corn the men do is in unloading the cut corn at the silo into the blower which elevates it into the silo.

So in this season with the need

knives should be sharpened every half day and the shear bar adjusted as close to the knives as the thickness of a newspaper. The knives should be adjusted or shimmed up to produce a uniform clearance of the shear bar.

4. One man in the silo to distribute the silage is all that is necessary. Tramping in the silo as it is filled is no longer practiced on the majority of Iowa farms. An increased tonnage of silage may be stored by allowing a partially filled silo to settle for several days before completing the filling.

## New Haying Practices

Newest among the practices in making hay are baling out of the windrow, the use of tractor sweep rakes and combination sweep rake stackers, storing grasses and legumes as silage and storage of chopped hay.

Our experience here at Iowa State College does not show that all of these newer practices save labor, though they have other advantages. Where bales are picked up and stored by hand following the pick-up baler, the total labor per acre is greater than with the use of a hay loader and hay rack, we have found.

An advantage of the baled hay, however, is that it occupies less than half the storage space required for loose hay.

In the introductory stage now is the field forage harvester. Although one company has been selling a field hay and forage harvester for years, the practice of chopping hay in the field is not widespread. Manufacturers of farm equipment are experimenting with small, light weight, low cost field harvesters or choppers which can be used to chop dry hay or straw from the windrow and to cut and chop green grasses and legumes for silage. From the standpoint of utility, such a machine should also be able to chop corn for silage.

Development and manufacture of new haying equipment undoubtedly will be greatly slowed down by necessity of directing our efforts toward winning the war. Once that job is finished we may see great strides in improving and increasing haying equipment as well as other farm equipment.



Field forage harvesters are not common in Iowa, but chopping of hay crops in the field for silage before they're cured or after curing to store for hay is increasing.

the owners but a lot of neighbors.

Except under favorable conditions for machine-picking, the losses are larger with a cornpicker than by hand picking and they are much larger as the season advances. The Iowa Station workers have found that it is best to start picking with a mechanical picker just as soon as the corn is ready for cribbing. Losses on some varieties of corn were nearly five times as great on Nov. 26 as they were on Oct. 28.

## Getting Silos Filled

One job that takes a lot of labor in the fall on many farms is silo filling. Iowa has about 1,269 field ensilage harvesters which cut the corn in the field ready to be blown into the silo. Of the stationary ensilage cutters which operate at the silo (the corn having been cut in the field with binders and

for labor and the necessity in some instances of getting along with less "strong" help, the field ensilage cutters probably should be used to full capacity. They can reasonably be expected to harvest 1 acre an hour.

Here are a few suggestions for increasing the capacity and hourly output of silo filling equipment:

1. Use large trailers pulled by tractors to collect and haul ensilage from the field harvester to the silo.

2. Use low to medium height racks with a large capacity for hauling bundles from the field to stationary choppers at the silo.

3. Attention to the mechanical condition of the stationary ensilage cutter will reduce power requirements and increase capacity. The tips and outer edges of the fan blades should be adjusted or built up to run within 1/4 to 1/8 inch of the blower housing. Cutter